IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A crystallization apparatus comprising:

a phase shift mask; and

an illumination system which illuminates the phase shift mask, the crystallization apparatus irradiating a polycrystal semiconductor film or an amorphous semiconductor film with a light ray having a light intensity distribution with an inverse peak pattern that a light intensity is minimum in an area corresponding to a phase shift portion of the phase shift mask, thereby generating a crystallized semiconductor film,

the crystallization apparatus further comprising an image forming optical system which has an image side numerical aperture set to a value required to generate the light intensity distribution with the inverse peak pattern and sets the polycrystal semiconductor film or the amorphous semiconductor film and the phase shift mask to an optically conjugate relationship,

the phase shift mask having a boundary area which extends ~~along a first axial line~~ in a first direction across the phase shift mask, and a first area and a second area which are arranged on ~~both~~ opposite sides of the boundary area ~~along a second axial line intersecting with to the first axial line~~ in a second direction intersecting the first direction, and ~~have~~ the first and second areas having a predetermined phase difference therebetween, and

the boundary area having a phase distribution which varies from a phase of the first area to a phase of the second area ~~along~~ in the second ~~axial line~~ direction.

Claim 2 (Currently Amended): The crystallization apparatus according to claim 1, wherein the boundary area has a phase distribution which continuously varies along the second ~~axial line~~ direction.

Claim 3 (Currently Amended): The crystallization apparatus according to claim 1, wherein the boundary area has a phase distribution which varies in a step form along the second ~~axial line~~ direction.

Claim 4 (Currently Amended): The crystallization apparatus according to claim 1, wherein the phase shift mask has a plurality of phase shift basic patterns, each consisting of the first area, the boundary area and the second area, the phase shift basic patterns being repeatedly formed along the second ~~axial line~~ direction.

Claim 5 (Original): The crystallization apparatus according to claim 4, wherein a small area having a predetermined shape is formed in the boundary area, and a second phase difference is given between the small area and a surrounding area of the small area.

Claim 6 (Original): The crystallization apparatus according to claim 5, wherein the small area is formed at a position corresponding to an area where a light intensity is minimum in the boundary area.

Claim 7 (Original): The crystallization apparatus according to claim 5, wherein the second phase difference is approximately 180 degrees.

Claim 8 (Original): The crystallization apparatus according to claim 1, wherein the imaging forming optical system has a pupil function that a transmittance distribution is lower at the circumference than at the center.

Claim 9 (Original): The crystallization apparatus according to claim 8, wherein the imaging forming optical system has a pupil function that a transmittance distribution is of a Gauss type.

Claim 10 (Original): The crystallization apparatus according to claim 8, wherein a filter having a numerical aperture corresponding to the pupil function is arranged on a pupil plane of the image forming optical system or in the vicinity thereof.

Claim 11 (Original): The crystallization apparatus according to claim 5, wherein, assuming that NA is an image side numerical aperture of the image forming optical system, λ is a wavelength of the light and r is a radius of a circle circumscribing the small area, the following condition is satisfied:

$$0.05\lambda/NA \leqq r \leqq \lambda/NA$$

Claim 12 (Currently Amended): A crystallization method which illuminates a phase shift mask, and irradiates a polycrystal semiconductor film or an amorphous semiconductor film with a light ray having a light intensity distribution with an inverse peak pattern that a light intensity is minimum in an area corresponding to a phase shift portion of the phase shift mask, thereby generating a crystallized semiconductor film, comprising:

arranging an image forming optical system in a light path between the polycrystal semiconductor film or the amorphous semiconductor film and the phase shift mask;

setting an image side numerical aperture of the image forming optical system to a value required to generate the light intensity distribution with the inverse peak pattern;

setting the polycrystal semiconductor film or the amorphous semiconductor film to a position which is optically conjugate with the phase shift mask through the image forming optical system; and

using, as the phase shift mask, a phase shift mask which has a boundary area extending along a first ~~axial line~~ direction across the phase shift mask, and a first area and a second area which are arranged on ~~both~~ opposite sides of the boundary area along a second ~~axial line intersecting with the first axial line~~ direction intersecting the first direction, and ~~have~~ the first and second areas having a predetermined phase difference therebetween, the boundary area having a phase distribution which varies from a phase of the first area to a phase of the second area along the second ~~axial line~~ direction.

Claim 13 (Currently Amended): A phase shift mask having a boundary area extending along a first ~~axial line~~ direction across the phase shift mask, and a first area and a second area which are arranged on both sides of the boundary area ~~along~~ in a second ~~axial line intersecting with the first axial line~~ direction intersecting the first direction, and ~~have~~ the first and second areas having a predetermined phase difference therebetween, the boundary area having a phase distribution which varies from a phase of the first area to a phase of the second area along the second ~~axial line~~ direction.

Claim 14 (Currently Amended): The phase shift mask according to claim 13, wherein a transparent substrate is provided, the boundary area and the first and second areas are formed on one surface of the substrate, and a plurality of steps are formed to the boundary area so as to ~~be deep~~ extend from the first area toward the second area.

Claim 15 (Original): The phase shift mask according to claim 13, wherein a small area having a predetermined shape is formed to a part of the boundary area, and a second phase difference is given between the small area and a surrounding area of the small area.

Claim 16 (Original): The phase shift mask according to claim 15, wherein the small area is formed by a protrusion or a dimple.

Claim 17 (Currently Amended): The phase shift mask according to claim 13, wherein the first ~~axial line~~ direction is orthogonal to the second ~~axial line~~ direction.

Claim 18 (Canceled).